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SKIPANON CHANNEL, OREG.

LETTER

FROM

THE SECRETARY OF WAR

TRANSMITTING

REPORT FROM THE CHIEF OF ENGINEERS ON PRELIMINARY EXAMINATION AND SURVEY OF SKIPANON CHANNEL, OREG.

MAY 11, 1928.—Referred to the Committee on Rivers and Harbors and ordered to be printed, with illustration

WAR DEPARTMENT,
Washington, May 11, 1928.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

DEAR MR. SPEAKER: I am transmitting herewith a report, dated May 9, 1928, from the Chief of Engineers, United States Army, on preliminary examination and survey of Skipanon Channel, Oreg., authorized by the river and harbor act approved March 3, 1925, together with accompanying papers and map.

Sincerely yours,

DWIGHT F. DAVIS,
Secretary of War.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, May 9, 1928.

Subject: Preliminary examination and survey of Skipanon Channel, Oreg.

To: The Secretary of War.

1. I submit, for transmission to Congress, my report, with accompanying papers and map, on preliminary examination and survey of Skipanon Channel, Oreg., authorized by the river and harbor act approved March 3, 1925.

2. Skipanon Channel is the improved mouth of Skipanon River, a tributary entering the Columbia below Astoria. The locality is not under improvement by the United States. Local interests have

expended more than half a million dollars in providing a channel generally 20 feet deep and 100 feet wide between the Columbia River and the Spokane, Portland & Seattle Railway bridge at Warrenton. Extensive timber bulkheads have been constructed on both sides for the protection of this channel. The improvement now desired is a channel 30 feet deep and 300 feet wide. The range of tide between mean lower low water and mean higher high water is about 8 feet.

3. In 1927 the commerce handled on Skipanon Channel amounted to 227,000 tons, of which 165,000 tons was rafted timbers. The narrow and shallow channel is said to exclude from the port vessels drawing 30 feet when loaded. In consequence the lumber produced on Skipanon Channel has to be shipped in smaller vessels. More than 15,000,000 feet b. m. of lumber was moved in 1927 from the mills on Skipanon Channel to Astoria for shipment in the deeper-draft vessels calling at that port. It is claimed that most of this lumber could have been loaded at the mills if adequate facilities had existed on Skipanon Channel. The total cost of the transfer to Astoria was $21,295.

4. The district engineer states that a least depth of 30 feet at mean lower low water is required to accommodate vessels of the class which the local interests desire to attract. With a suitable turning basin at the head of the improvement, he considers that a channel width of 200 feet would be adequate. Additional industries would probably be started at Warrenton, as the surrounding area is suitable for such development, while the city of Astoria has a limited remaining area of level ground. Channels 200 feet wide and 25 and 30 feet deep, with turning basins, are estimated to cost between $54,000 and $135,000. The probable cost of annual maintenance is $15,000. The district engineer recommends a channel 30 feet deep and 200 feet wide, with a turning basin for vessels 450 feet long, indicated on the map as "A B C D", at an estimated cost of $135,000.

5. The division engineer concurs with the district engineer as to the advisability of improving the channel, but believes that a depth of 25 feet and a width of 150 feet would be sufficient for the present needs. Such a channel would provide for all coastwise shipments, and by taking advantage of the tide most of the lumber vessels using the Columbia River could be accommodated. The estimated cost of such an improvement, including a turning basin as recommended by the district engineer, is $78,000, with $13,000 annually for maintenance dredging. He recommends such a project, provided local interests agree to maintain at their own expense all timber bulkheads along the outer portion of the channel, furnish free of cost to the United States places of deposit for dredged material, deed to the United States all uplands channelward of the established harbor lines, and secure the United States from liability for any claims for damages on account of dredging the channel and turning basin.

6. The report of the district engineer has been referred, as required by law, to the Board of Engineers for Rivers and Harbors, and attention is invited to its report herewith, agreeing in general with his views.

7. Skipanon Channel offers the only protected site for a harbor near the mouth of Columbia River with the exception of a small harbor on the Washington side where expansion is impracticable.

Vessels are unable to lie in the estuary with safety at all times while transferring cargo. The average annual cut of the two mills now operating on Skipanon Channel is such that with two shifts the tonnage to be shipped would be about 192,000. A third mill recently damaged by fire is expected to be rebuilt as soon as the insurance is adjusted. The local mills are unable to compete with other ports, particularly in direct shipments to trans-Pacific or Atlantic ports. Particular emphasis is laid upon the necessity of a lumber port near the mouth of the Columbia River where vessels partly loaded elsewhere could obtain the balance of their cargo. While the city of Astoria has adequate depth of water at its terminals, lumber mills can not be established on account of the local topography.

8. The logs used by the mills on Skipanon Channel are brought in from points on the Columbia River where an enormous supply is available for purchase. Many of the lumber carriers regularly trading in Columbia River have drafts between 27 and 31 feet. Even at high water the cross section of the channel provided by local interests is not sufficient to provide for the movements of vessels of such draft. It is stated that vessel movements as far upstream as Portland have sometimes been necessary for completing part cargoes on account of the absence of a deep water lumber port near the mouth of the river. Such a port would be valuable in connection with the Federal improvements at a number of points on the Oregon and Washington coasts. The local developments at these points have not justified the United States in undertaking the large expenditures necessary to provide them with channels for the deeper draft lumber carriers. Skipanon Channel is favorably located and offers a protected harbor where vessels partly loaded could complete their cargoes. A channel of suitable cross section can be had at moderate cost. I therefore report that the improvement of Skipanon Channel, Oreg., is deemed advisable, so as to provide for a channel 30 feet deep and generally 200 feet wide, with a turning basin indicated on the map as "A B C D," at an estimated cost of $135,000, with $15,000 annually for maintenance, subject to the provisions that local interests shall maintain at their own expense the timber bulkheads along the channel, shall furnish, free of cost to the United States, suitable areas for the disposal of dredged material and necessary rights of way for the channel and turning basin, and shall secure the United States from liability for damages resulting from dredging the channel and turning basin.

EDGAR JADWIN,
Major General, Chief of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

SYLLABUS

The Board of Engineers for Rivers and Harbors concurs with the district engineer in recommending a channel 30 feet deep and 200 feet wide, suitably widened at the bends, with a turning basin indicated as "A B C D" on the map, at an estimated cost of $135,000, with $15,000 annually for maintenance, subject to certain conditions of local cooperation.

[Third indorsement]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
Washington, D. C., April 25, 1928.

The CHIEF OF ENGINEERS, UNITED STATES ARMY:

1. The following is in review of the reports on preliminary examination and survey of Skipanon Channel, Oreg., authorized by the river and harbor act approved March 3, 1925.

2. Skipanon Channel is the improved mouth of Skipanon River, a tributary entering the Columbia below Astoria. The locality is not under improvement by the United States. The city of Warrenton, with some financial aid from the port of Astoria, has expended more than half a million dollars in connection with the provision of a channel 20 feet deep and 100 feet wide between the Columbia River and the Spokane, Portland & Seattle Railway bridge, with greater depth and width at certain points. For the protection of this channel extensive timber bulkheads were built on both sides. Local interests now desire the United States to provide a channel 30 feet deep and 300 feet wide. The range of tide between mean lower low water and mean higher high water is about 8 feet.

3. The commerce handled on Skipanon Channel during the calendar year 1927 amounted to 227,000 tons, of which 165,000 tons was rafted timbers. It is claimed that the narrow and shallow channel excludes from the port vessels drawing 30 feet when loaded. The lumber produced on Skipanon Channel therefore has to be shipped in smaller vessels, and direct shipments can not be made economically to the Atlantic coast. During 1927, more than 15,000,000 feet b. m. of lumber was moved from the mills at Skipanon Channel to Astoria for shipment in the deeper-draft vessels calling at that port. It is claimed that most of this lumber could have been loaded on Skipanon Channel if proper facilities were provided. The cost of transferring it to Astoria totaled $21,295.

4. The district engineer states that to accommodate vessels of the class which the Skipanon Waterway Committee desires to attract, a least depth of 30 feet at mean lower low water is required. If a suitable turning basin be provided at the head of the improvement, he considers that a channel width of 200 feet would be adequate. He is of the opinion that an improvement of this nature would attract additional industries to Warrenton, particularly as the adjacent city of Astoria now has a limited remaining area suitable for large industries.

5. The estimated cost of channels 200 feet wide and 25 and 30 feet deep ranges from $54,000 to $135,000. The estimated cost of annual maintenance is $15,000. The work could be accomplished by the use of one of the dredges assigned to the Columbia River improvement, the material to be deposited on the low flats on either side of the existing channel. The district engineer recommends a channel 30 feet deep and 200 feet wide, with a turning basin for vessels 450 feet long, as indicated by "A B C D" on the map, at an estimated cost of $135,000.

6. The division engineer concurs with the district engineer as to the advisability of improving the channel, but believes that a depth of 25 feet and a width of 150 feet would be sufficient for the present needs. Such a channel, with a turning basin of the size recommended by the

district engineer, he concludes, would amply provide for all coastal shipments and, if advantage be taken of the tide and the berths be dredged to a sufficient depth, most of the lumber-carrying ships using the Columbia River could be accommodated with little inconvenience. Such an improvement is estimated to cost $78,000, with $13,000 annually for maintenance (dredging only). He recommends the adoption of such a project, subject to the provisions that local interests agree to maintain, without cost to the United States, the timber bulkheads along the outer portion of the channel, furnish free of cost to the United States places of deposit for material dredged both for original construction and for maintenance, deed free of cost to the United States all uplands channelward of the established harbor lines, and secure the United States from liability for any claims for damages on account of dredging the channel and turning basin.

7. The board was not convinced from the information submitted of the advisability of the United States undertaking the improvement. Interested parties were advised and given an opportunity to present their views. A hearing was held at which additional information was presented. It was pointed out that Skipanon Channel provides the only protected harbor near the mouth of Columbia River, with the exception of a small harbor on the Washington side where there is a single wharf and where conditions prevent expansion. The estuary becomes so rough at times that vessels are unable to lie there with safety while transferring cargo. Illustrating the value of this harbor as a point of safety, it was stated that the quartermaster boat regularly lies at a wharf at Warrenton instead of at Fort Stevens. The average annual cut of the two mills now operating on Skipanon Channel is 67,500,000 feet for one shift, or 96,000 tons. With two shifts the tonnage would be about 192,000. Under present channel conditions the local mills are unable to compete with other ports, particularly in the direct shipment of lumber to trans-Pacific or north Atlantic ports. Particular stress is also laid on the necessity of a lumber port near the mouth of the Columbia River where vessels partly loaded at points on the Oregon and Washington coasts could obtain the balance of their cargo. No suitable port of that nature is now available. The topography of the city of Astoria precludes the establishment of lumber mills at that point.

8. The mills on Skipanon Channel receive their logs in rafts from points on the Columbia River, where an enormous supply is available for purchase. By the expenditure of a large sum raised by the issue of bonds, which are still outstanding, the locality has provided a channel on which there has developed an important lumber movement in ocean carriers. Many of the lumber carriers regularly trading in Columbia River have drafts between 27 and 31 feet. The cross section of the channel now available is not sufficient even at high water, however, to provide for the movement of vessels of these deeper drafts. On account of the limited storage facilities at the lumber wharves, economical lumber movement necessitates partial loading of a vessel at several points. The absence of a deep-water lumber port near the mouth of the Columbia River has at times necessitated vessel movements as far upstream as Portland for completing their cargoes. There are a number of points along the Oregon and Washington coasts where Federal improvements have been made for the shipment of lumber. The local developments at these points have

not justified the United States in undertaking the large expenditures necessary to provide channels for the deeper draft lumber carriers. A conveniently located port where vessels partly loaded at coastal points could complete their cargoes would be of economic value. Skipanon Channel is favorably located and offers a protected harbor for business of this nature. A deeper channel would also tend to encourage the development of additional industries with a resulting increase in commerce. A suitable channel can be provided at moderate cost.

9. The board therefore recommends the improvement of Skipanon Channel, Oreg., by the provision of a channel 30 feet deep at mean lower low water and generally 200 feet wide, with a turning basin indicated on the map as "A B C D," at an estimated cost of $135,000, with $15,000 annually for maintenance, subject to the provisions that local interests shall maintain at their own expense the timber bulkheads along the channel, shall furnish, free of cost to the United States, suitable areas for the disposal of dredged material, shall deed to the United States all land channelward of the established harbor lines and shall secure the United States from liability from claims for damages resulting from dredging the channel and turning basin.

10. In compliance with law, the board reports that, except as contemplated by the above recommendations, there are no questions of terminal facilities, water power, or other subjects so related to the project proposed that they may be coordinated therewith to lessen the cost and compensate the Government for expenditures made in the interests of navigation.

For the board.

HERBERT DEAKYNE,
Brigadier General, Assistant Chief of Engineers,
Senior Member.

PRELIMINARY EXAMINATION OF SKIPANON CHANNEL, OREG.

SYLLABUS

The improvement apparently desired is dredging the channel between Columbia River and the city of Warrenton, Oreg., to a depth of 30 feet at mean lower low water, with a turning basin to the same depth near Warrenton. The district engineer believes the existing commerce warrants improvement of the channel and recommends a survey to determine the cost.

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE, SECOND DISTRICT,
Portland, Oreg., June 15, 1925.

Subject: Preliminary examination of Skipanon Channel, Oreg.
To: The Chief of Engineers, United States Army
(Through the Division Engineer).

1. In accordance with the provisions of section 8 of the river and harbor act of March 3, 1925, the following report is submitted on preliminary examination of Skipanon Channel, Oreg.

GENERAL DESCRIPTION

2. Skipanon Channel is that stretch of waterway about 1.8 miles long which extends downstream from where the Spokane, Portland & Seattle Railway bridge crosses Skipanon River, Oreg., about a mile

above its mouth, to the harbor line of Columbia River which extends in a southeasterly direction from Tansy Point.

3. Skipanon River (also known as Skipanon Creek and Skeppernawin Creek) is in Clatsop County, Oreg. The river, which includes Skipanon Channel, is better described as a backwater from Youngs Bay, as its slope is negligible. It extends in a southerly direction about 6 miles inland from its entrance into Youngs Bay, an arm of Columbia River near its mouth. The practical head of navigation is at the railroad bridge, 1 mile above the mouth, although the smaller boats can go a mile or so farther upstream.

4. The principal town is Warrenton, having a population of about 1,000 and situated about a mile above the mouth of the river.

ORIGINAL CONDITION

5. Before improvement by the city, Skipanon River was a narrow, crooked stream having a controlling depth of about 1 foot at low water. The original condition of the river is described in report by Capt. Charles F. Powell, Corps of Engineers, United States Army, upon an examination of Youngs, Lewis & Clark, and Skipanon Rivers entering into Youngs Bay, near mouth of Columbia River, Oreg., dated January 27, 1882. (A. R. 1882, pp. 2714–2716.) The report which was favorable, was made in compliance with provisions of the river and harbor act of March 3, 1879, and printed as Senate Executive Document No. 112, Forty-seventh Congress, first session.

6. The report states that the Skipanon River has a tidal section 3¾ miles long, 1,000 feet wide at its mouth, and 50 feet at its head. Two thousand feet off the mouth of the Skipanon there was a bar with only 1 foot of water at very low tides. The water inside was of sufficient depth for ordinary river steamboating, but three sharp bends made the channel too tortuous for the longer steamers. The boat landing was 2 miles above the mouth and a fixed highway bridge crosses the river a mile farther up. A population of 350, mostly agricultural, marketed their products in Astoria, about 5 miles distant across a good navigable bay.

7. Captain Powell recommended excavation of a cut-off canal at the sharpest bend on the Skipanon River at a cost of $5,000 and the subsequent yearly removal of snags at a cost of $2,000 per annum.

WORK ACCOMPLISHED BY PRIVATE MEANS

8. No further action having been taken by the United States, the city of Warrenton in 1918 acquired the right of way for a waterway from the Columbia River Channel to the drawbridge of the Spokane, Portland & Seattle Railway Co., a distance of about 1¾ miles. The right of way varies from 300 feet at the upper end to 500 feet at the mouth. Additional land for a turning basin at the upper end was acquired. In cooperation with the port of Astoria a channel 100 feet wide on the bottom and 20 feet deep at mean lower low water was dredged, and timber bulkheads on both sides of the channel were built parallel to and distant 275 to 375 feet from the axis of the channel. These bulkheads were designed to retain the material excavated from the channel. The work was done under authority of the Secretary of War, through permit issued by the district engineer February 17, 1919.

9. Additional dredging was done during 1922, increasing the depth of the channel to 25 feet at mean lower low water and the width in some places to 125 feet, as far as Prouty's Dock, about three-fourths mile below the railway bridge.

10. About $560,000 has been expended by the port of Astoria and city of Warrenton in improving the waterway.

11. The city of Warrenton applied to this office January 21, 1924, for a modification of the pierhead and bulkhead lines on Youngs Bay and Columbia River between the mouth of Lewis and Clark River and Tansy Point, which, having been approved by the Secretary of War May 21, 1896, were modified April 30, 1918. These lines cross the entrance of Skipanon Channel. The application was made with a view to preserving the present channel, restricting the construction of obstructions to navigation, and placing the river in a position to receive the benefit of Federal assistance in improving the channel by dredging should necessity arise. Under present conditions such Federal aid is unlawful. (Sec. 5, river and harbor act, approved July 13, 1892.) For the purpose of discussion a public hearing was held at Warrenton February 15, 1924. The meeting was representative and no objections were raised to the establishment of the proposed harbor lines. The question of their exact location was not agreed upon, however, and the matter is pending until arrangements can be made for acquisition of certain land necessary to the construction of a larger harbor at the city end of the channel.

12. Mr. G. C. Barlow, secretary of the Port of Astoria Commission, submitted at the hearing a written report [1] dated February 15, 1924, on the work already accomplished by the city of Warrenton in the development of the channel, together with a statement of commerce for the calendar years 1919 to 1923, inclusive. During 1923 the Prouty Lumber & Box Co. shipped through the Skipanon Channel:

22,546 tons lumber, valued at		$319,916.81
74,088 tons logs valued at		469,244.00
372 tons laths valued at		11,254.72
97,006	Total	800,415.53

13. The following figures, taken from Mr. Barlow's report, show the commerce for the years 1919 to 1923, inclusive:

Calendar year	Tonnage	Value
1919	161,535	$768,153.65
1920	232,051	1,162,249.95
1921	149,690	673,929.79
1922	194,814	1,050,447.59
1923	221,460	1,789,689.33
Total	959,550	5,444,470.31

Details of the above statement will be found on pages 9 and 10 of Mr. Barlow's report.[1]

14. Attention is invited to the report [1] dated June 6, 1925, of Mr. W. C. Tremblay, vice president of the Warrenton Lumber Co., a copy of which is forwarded herewith. Mr. Tremblay is chairman

[1] Not printed.

of a committee appointed to take up the matter of improving Skipanon Channel with the department. His report is comprehensive. It deals with the necessity for deeper water, local industries, dock facilities, railroad facilities, adjacent ports, etc., and states that the port of Astoria and city of Warrenton jointly have expended $560,000 up to date on improving the channel and have reached the legal limit for bonding for this purpose.

COMMERCIAL STATISTICS

15. Lumber statistics gathered by this office for Warrenton, Oreg. (ocean traffic only), are as follows:

Calendar year 1923:	
Lumber (export), 1,819 tons, valued at	$29,104
Lumber (domestic), 39,963 tons, valued at	679,371
Total (41,782 tons)	708,475
Calendar year 1924:	
Lumber (export), 12,737 tons, valued at	178,318
Lumber (domestic), 25,754 tons, valued at	373,433
Total (38,491 tons)	551,751

To which may be added figures for 1924 obtained from Warrenton Lumber Co. for inland river traffic, 81,604 tons of logs (towed), valued at $673,233.

FIELD EXAMINATION

16. An examination of the channel was made May 28, 1925, in company with some of the prominent citizens and a tentative route for the harbor line laid out, as shown on the inclosed sketch map [1] of the channel. This involves a change in the existing (modified) Columbia River Harbor line between the mouth of Lewis & Clark River authorized by the Assistant Secretary of War October 30, 1918, to the extent of eliminating about 500 feet thereof. A somewhat larger turning basin at the Warrenton end would be desirable, but as this would require the removal of a large saw mill, it was considered impracticable.

17. Inspection of the timber bulkheads which were constructed six years ago showed decided depreciation. They will need repair, and in parts the renewal, of the structure within the next two years.

18. Skipanon River offers no possibilities of water power development.

19. There are three bridges on Skipanon River, a railroad bridge about 1¾ miles above the lower entrance to the channel, and two highway bridges, one about 100 feet and the other 1½ miles above the railroad bridge. The two first named have swing draw and single bascule span, with 33 feet and 33.25 feet minimum horizontal and 10 feet and 15 feet vertical clearance closed, respectively. The third has a lift span, dimensions not known, and is above navigation limits.

20. Traffic above the railroad bridge is limited to small craft. Controlling depth in the channel below the railroad bridge at mean lower low water is 20 feet, at mean stage 27½ feet, and at high stage 30 feet.

[1] Not printed.

TERMINAL FACILITIES

21. Existing terminal facilities consist of three substantially constructed timber wharves, one municipally and two privately owned, which are sufficient for the present commerce. The location of these wharves is shown on the sketch map [1] herewith. The Spokane, Portland & Seattle Railroad is accessible to all wharves. Existing freight handling facilities are crude, and mainly installed with a view to handling lumber.

IMPROVEMENT DESIRED

22. The object which the community has in mind is the deepening and widening of the channel from the city of Warrenton to the Columbia River and the construction of a suitable turning basin just below the railroad bridge.

NATIONAL AND LOCAL BENEFITS

23. Improvement of the channel will benefit the city of Warrenton and environs locally to the extent of building up industries already established and attracting others to locate. Nationally it will affect the Southern and Atlantic coast markets by facilitating the transfer of lumber and other local commodities. The Port of Astoria and city of Warrenton have already spent a large sum in improving the channel and I do not consider that local cooperation should be required at the present time. There seems good reason to believe that improvement of the channel will result in a substantial increase of the commerce of the port.

DISCUSSION

24. Summarizing, it develops that commerce of Skipanon Channel consists principally of lumber, logs, crushed rock, sand, and asphalt; that there is a traffic approximating 200,000 tons annually; that of this amount there is an export and domestic ocean traffic of about 40,000 tons of lumber; that the present controlling depth of 20 feet at mean lower low water in the channel is insufficient for the vessels handling this traffic, which draw up to 30 feet when loaded, and that a suitable turning basin is needed to enable the vessels to turn around in the channel. As no improvement can be undertaken by the United States until a change in the existing harbor lines has been made, this office proposes to notify the Port of Astoria and the city of Warrenton of this condition and request them to make application for a modification of the existing harbor lines approximately along the lines laid down on the inclosed sketch map.[1]

RECOMMENDATION

25. I am of the opinion that the existing commerce and the substantial financial interest already shown by the community warrants additional investigation, and to this end I recommend that a survey and estimate of cost of improvement be made.

R. T. COINER,
Major, Corps of Engineers,
District Engineer.

[1] Not printed.

[First indorsement]

OFFICE DIVISION ENGINEER, NORTHERN PACIFIC DIVISION,
Seattle, Wash., Aug. 22, 1925.

THE CHIEF OF ENGINEERS, UNITED STATES ARMY.

1. The undertaking by the United States of any improvement at this locality appears of very doubtful propriety as the benefit would be almost entirely local and limited largely to two or three mills. This is practically an artificial waterway constructed a short distance only from the Port of Astoria where ample depth and dockage facilities exist and is apparently more in the nature of an approach channel to provide docks than a main channel which should be improved by the United States. Only two of the three large mills were in operation at the time of inspection by the division engineer on August 13, and of these only the Pronty Lumber & Box Co. is located directly on the waterway. The present shipments amount to only about 40,000 tons per annum. It appears that vessels can now be loaded to about 24 feet draft which is sufficient to provide full loading of practically all coastal and intercoastal vessels. It is not unusual for offshore vessels to take part cargo at one port and complete the loading at other localities.

2. In view, however, of the amount expended on this channel by local interests, it is believed that a survey with a view to determine the cost of additional improvements desirable is justifiable and I therefore concur with the recommendation of the district engineer to that effect. A channel of less dimensions than that asked for would appear to be ample for the present needs of this locality.

W. J. BARDEN,
Colonel, Corps of Engineers,
Division Engineer.

[Third indorsement]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
Washington, D. C., January 11, 1928.

THE CHIEF OF ENGINEERS, UNITED STATES ARMY.

1. The board, while not convinced of the advisability of improvement at Federal expense, recommends a survey to obtain additional information and accurate cost data. The cost estimates should be for depths of both 25 and 30 feet, with appropriate widths and a suitable turning basin.

2. Information is desired on the following points:

(*a*) The total commerce, both rail and water, pertaining to each of the important industries of the neighborhood in 1925.

(*b*) The estimated commerce that would be diverted from rail to water if a deeper channel were available; also that, now handled over the Astoria wharves, which would be loaded in ocean-going vessels at Skipanon wharves; and the savings in each case.

(*c*) Such estimate as is available of the amount and character of new developments and new commerce which might follow the improvement.

(*d*) The requirements for increased depths, as indicated by the amount of lumber handled on vessels of various drafts at Columbia River ports, with due regard for the tidal variation.

(*e*) The unit and total value of land adjoining the channel and the timber bulkheads; before the improvement by the port; now and in the event of further Federal improvement.

(f) The financial status of the bonds issued by the locality, and the probable effect thereon of Federal improvement. In this connection attention is invited to the two attached photostats.

For the board:

EDGAR JADWIN,
Brigadier General, Corps of Engineers,
Senior Member of the Board.

SURVEY OF SKIPANON CHANNEL, OREG.

SYLLABUS

The district engineer recommends a channel 30 feet deep at mean lower low water, and 200 feet wide from deep water in Columbia River to the city of Warrenton, including a turning basin 30 feet deep with a turning capacity of 450 feet, all at an estimated cost of $135,000, and $15,000 annually thereafter for maintenance.

WAR DEPARTMENT,
UNITED STATES ENGINEER OFFICE,
Portland, Oreg., December 13, 1926.

Subject: Survey of Skipanon Channel, Oreg.
To: The Chief of Engineers, United States Army
(Through the Division Engineer).

1. In compliance with instructions contained in department letter[1] dated January 22, 1926, a survey of Skipanon Channel has been made and a map of the survey is forwarded herewith.

2. Conditions in general have not changed since the submission of the report of preliminary examination to which reference is made for general information.

3. The work accomplished by private interests, described in paragraph 8 of the preliminary report, has so far been of great benefit to commerce, and the channel is in fair condition. Compared with a survey made by the Port of Astoria in 1923, the controlling depth is now about 19 feet, and the channel width has lessened in the past three years.

4. A proposed channel 200 feet wide on the bottom, with turning basin, is shown on the map. For the present and reasonably prospective commerce this seems wide enough, if the proposed turning basin is used for passing and turning by the larger craft using the channel. Two suggested locations for the basin are shown on the map, one marked "A B C D," the limit of length for turning being 450 feet, and the other marked "E F G H," with a turning limit of 300 feet. The side slopes are 1 on 2 for either basin.

5. The dredging plans are based on the assumption that harbor lines will be established as recommended in report from this office to the Chief of Engineers, dated November 12, 1926, upon application by the port of Astoria and city of Warrenton, dated May 13, 1926, for establishment of harbor lines in Skipanon Channel, and modification of certain existing harbor lines in Columbia River.

6. Estimates of cost of dredging a channel 200 feet wide on the bottom, with side slopes of 1 on 2, 25 feet deep and 30 feet deep,

[1] Not printed.

respectively, at mean lower low water, from the city of Warrenton to deep water in Columbia River, are as follows:

(*a*) For 25-foot channel only:	
656,000 cubic yards at 7½ cents	$49,200
Engineering and contingencies	4,800
	54,000
(*b*) For 25-foot channel with turning basin A B C D on the map:	
1,168,000 cubic yards at 7½ cents	87,600
Engineering and contingencies	9,400
	97,000
(*c*) For 30-foot channel only:	
1,113,000 cubic yards at 7 cents	77,910
Engineering and contingencies	7,090
	85,000
(*d*) For 30-foot channel with turning basin A B C D on the map:	
1,757,000 cubic yards at 7 cents	122,990
Engineering and contingencies	12,010
	135,000

Substituting a smaller turning basin, as at E F G H, the estimate is as follows:

(*e*) For 25-foot channel with turning basin E F G H:	
820,000 cubic yards at 7½ cents	$61,500
Engineering and contingencies	6,500
	68,000
(*f*) For 30-foot channel with turning basin as in E F G H:	
1,297,000 cubic yards at 7 cents	90,790
Engineering and contingencies	9,210
	100,000

The amount estimated for annual maintenance is $15,000.

7. Detailed examination of the existing timber bulkheads shows that the previously reported depreciation applies more particularly to those privately owned. The condition of the bulkheads at the outer end on either side of the channel is good and repairs will probably not be needed for some years.

8. The plan contemplated for executing the improvement, and on which the estimates are based, is to use one of the pipe-line dredges belonging to the Columbia River improvement. It is proposed to deposit the material on the low flats on either side of the existing channel. The time for the accomplishment of the larger project is estimated at six months.

9. In order to accommodate the class of vessels described in the report [1] of the Skipanon waterway committee, herewith inclosed, a least depth of 30 feet at mean lower low water, and a turning basin of the same depth with an area not less than that of the larger of the two basins shown on the map, will be required. With a suitable turning basin the width of channel for the present need not exceed 200 feet on the bottom. The normal fluctuation of tide is from 6 to 7 feet, although tides of 8 or 9 feet are not infrequent.

[1] Not printed.

10. The following vessels, outward bound from Columbia River ports, loaded with lumber, departed during the calendar year 1925:

Name of vessel	Registered tonnage	Draft		Lumber carried	Name of vessel	Registered tonnage	Draft		Lumber carried
		Ft.	*in.*	*Ft. b. m.*			*Ft.*	*in.*	*Ft. b. m.*
Felix Taussig	3,662	27	10	1,375,000	Kalfarli	4,800	27	0	1,194,000
Noorderdyk	5,437	26	10	190,000	Commercial Traveler	3,001	27	2	1,960,000
London Merchant	4,939	28	9	375,000	Tuscaloosa City	3,450	27	0	175,000
Sunsho Maru	3,915	27	9	604,000	London Shipper	4,947	28	7	181,000
Peter Kerr	4,157	27	0	5,000,000	Chile	5,218	28	10	324,000
Seine Maru	4,988	31	0	1,356,000	Moerdyk	4,495	28	1	159,000
Yaju Maru	4,559	27	0	760,000	Yogen Maru	5,199	27	6	490,000
Unkai Maru	3,518	27	6	1,312,000	Mississippi	4,198	27	3	11,000
Miewn Maru	5,115	27	0	2,482,000	S. M. Hauptman	3,816	28	0	942,000
Hessen	4,587	28	2	158,000	Montpelier	2,813	27	4	439,000
S. L. Kent	3,604	27	8	1,372,000	Seekonk	3,114	26	0	4,048,000
Hakushika Maru	5,036	28	7	2,019,000	Sagadahoc	3,849	28	0	381,000
Talabot	5,912	29	2	1,865,000	London Importer	4,962	27	6	50,000
Hannawa	4,826	30	0	5,960,000	Katsura Maru	3,527	27	3	1,765,000
Anyo Maru	5,741	28	0	2,068,000	Wm. A. McKinney	3,654	27	2	2,588,000
Bolivia	3,425	28	10	803,000	Lochmonar	5,815	28	10	178,000

11. With the exception of a small amount of canned salmon, the commerce on Skipanon Channel for the calendar year 1925 consisted of lumber and logs. This industry is mainly handled by two large mills, the Prouty Lumber & Box Co. and the Warrenton Lumber Co., each of which operates docks and mills on the channel.

The commerce on Skipanon Channel during the calendar year 1925 was as follows:

	Short tons	Value
Freight,[1]	61,550	$825,292
Rafted timbers	115,000	645,151

[1] Includes 14,097 tons, value $263,238, which was shipped by raft, barge, and rail to Port of Astoria for transshipment.

The commerce by rail consisted of 9,019 short tons of lumber and 307 tons of canned salmon. There was shipped also by water and rail 1,160 tons of canned salmon. These figures are taken from report [1] herewith submitted by the Skipanon Waterway Committee. Reference is invited to this report for details of commerce and other matters pertaining to the desired improvement.

12. It is believed that a deeper channel in Skipanon Creek would not divert any appreciable amount of the existing rail commerce to water transportation. About 9,000,000 feet b. m. of lumber were delivered by the mills on Skipanon Channel to the port of Astoria during 1925, about 75 per cent of which could have been loaded on Skipanon Channel if a deeper and wider channel were available. The charges for transferring this lumber to Astoria totaled $2.15 per 1,000 feet b. m., or an added cost to transportation of $19,350. Following are transportation rates to the Atlantic coast:

	Per 1,000 feet
Via rail, rough lumber	$30.70
Via water, rough lumber	13.00
Difference in favor of water transportation	17.70

[1] Not printed.

13. It is probable on account of the favorable situation for rail and water transportation that improvement of the channel would attract additional industries. There is at present under construction by the Columbia River Fishermen's Cooperative Packers a salmon cannery, and a dry color manufacturing concern is considering a location at Warrenton on condition that the channel be improved.

14. Definite figures on land values are not available, but values which were speculative at the time of the original improvement are now at a low ebb. In many cases lands are for sale by the county and by the city of Warrenton for delinquent assessments. Improvement of the channel would without doubt increase the land values, resulting in the building up of the credit of the district and reestablishing the value of a bond issue for which the city of Warrenton obligated itself in connection with the original improvement. The city is at present unable to meet the bond interest coupons on account of the drop in land values and resulting tax delinquency.

15. The port of Astoria is interested in the proposed improvement and has included the district in its port area. Astoria is growing and its water front is filling up. Space for large plants is limited. Astoria being situated on a steep hillside, land suitable for mill sites is not available in the business district, except near the water front, where it is already largely taken up. The low land surrounding Warrenton is well suited for industrial sites, and close to rail, highway, and water facilities. If the channel is made available for deeper draft vessels, it is believed that a general increase of business will result to the benefit of Astoria, Warrenton, and the surrounding district.

16. The commerce of Warrenton is almost entirely confined to the log and lumber business, but it is believed that the deepening of the present channel to 30 feet at mean lower low water would not only induce larger vessels to enter the channel, materially increasing that business, but would attract other forms of industry, tending to develop the water-borne commerce of the entire district.

17. The cities of Astoria and Warrenton have, as stated in preliminary report, shown their faith in this development by the expenditure of over half a million dollars, which was expended in dredging, under authority of the Secretary of War, a channel 100 feet wide and 20 feet deep at mean lower low water, with timber bulkheads on both sides. This channel has been fairly well maintained to date. The original channel was crooked and narrow, having a depth of about 1 foot at mean lower low water.

18. The Astoria water-borne commerce for the calendar year 1925 was as follows:

	Tons	Value	Passengers
Handled by ocean-going vessels	224,397	$11,828,956	768
Handled by inland river vessels	147,804	7,215,172	61,365
Total	372,201	19,044,128	62,133

In addition to the above, there were 59,260 tons of rafted timber, valued at $454,990.

The Warrenton water-borne commerce for the past two calendar years was as follows:

	1924		1925	
	Tons	Value	Tons	Value
Lumber	38,491	$551,751	61,550	$825,292
Ratio: timbers	[illegible]	[illegible]	115,000	[illegible]

Increase of deep-water commerce in one year: 23,059 tons valued at $273,541.

The increase in deep-water tonnage was, therefore, 62½ per cent, and in value 67 per cent, in one year. The total water-borne commerce in tons for Warrenton for the calendar year 1925 was about 41 per cent of that of Astoria.

19. As stated above, the proposed channel and basin should not be less than 30 feet in depth to accomodate the traffic in view. The estimate for this, including the turning basin, is $135,000, which is about 9 per cent of the commerce valuation of Warrenton for the calendar year 1925, or 76 cents per ton for the total tonnage of same year. If Astoria commerce is included, the above figures would be 0.64 per cent of the commerce valuation and 22 cents per ton.

20. Although primarily the proposed channel would be used by the Warrenton lumber interests, it is believed that the short distance between Warrenton and its sister city Astoria indicates that consideration of the advisability of the expenditure of Government funds on the improvement of Skipanon Channel should be based on community rather than local benefits. Improvement of Skipanon Channel will undoubtedly add to the commercial activities of Astoria, the commercial status of large lumber interests will be maintained, the validity of an extensive civic bond issue will be ultimately assured, and the continuance of a waterway, built through the public-spirited action of local interests at a cost of over half a million dollars, will be secured for public use.

21. In view of the above, I am of opinion that the expenditure by the Government of $135,000 for the improvement of Skipanon Channel is advisable; and, if approved, I recommend that this amount be appropriated in one sum, to secure an economical and advantageous prosecution of the work; that the work be prosecuted continuously, and that the sum of $15,000 be provided for annual maintenance. A liberal amount of private funds having already been invested in constructing the existing channel, I do not recommend additional local cooperation in the proposed improvement.

For and in the absence of R. T. Colner, major, Corps of Engineers, District Engineer.

L. D. WORSHAM,
Major, Corps of Engineers,
Military Assistant.

[First indorsement]

OFFICE DIVISION ENGINEER,
NORTHERN PACIFIC DIVISION,
Seattle, Wash., April 30, 1927.

THE CHIEF OF ENGINEERS, UNITED STATES ARMY:

1. The estimates given by the district engineer for a channel 200 feet wide are as follows:

25 feet deep without turning basin	$[illegible]
25 feet deep with turning basin E F G H	[illegible]
25 feet deep with turning basin A B C D	[illegible]
30 feet deep without turning basin	[illegible]
30 feet deep with turning basin E F G H	[illegible]
30 feet deep with turning basin A B C D	[illegible]

He recommends the latter with an estimated annual cost for maintenance of $15,000. In a separate communication he gives the estimated cost of a channel 25 feet deep and 150 feet wide with turning basin A B C D as $78,000, with $13,000 per annum for maintenance.

2. The proposed turning basins involve the excavation of uplands not now the property of the United States. Any project adopted for the improvement of this locality should therefore include a provision that all uplands channelward of the established harbor lines be deeded free of cost to the United States. Also, as it appears possible that some sloughing of the banks may occur in the turning basin and narrow portion of the channel, local interests should agree to secure the United States against any claims for damage on account of dredging the authorized project.

3. The estimates for maintenance are for dredging only. They do not cover expenditures that will be necessary later for repairs to the existing timber bulkheads shown on the map by pencil lines marked "Bulkhead." These bulkheads are outside of the right of way acquired by local interests for the construction of the channel. It is understood that the lands on which they were constructed were for the most part acquired by easements from the property owners, except that on the west side the larger part of this land is owned by the city of Warrenton. Should any project be adopted under which the United States becomes responsible for the maintenance of these bulkheads it would seem that they and the land on which they are constructed should be deeded free of cost to the United States.

4. Paragraph 10 of the report might be misleading. It does not mean the vessels listed therein used this channel. It is merely a list of the deeper draft lumber-carrying vessels outbound from various ports on the Columbia River submitted in reply to an inquiry from the Board of Engineers for Rivers and Harbors.

5. The actual commerce on the Skipanon Channel during 1925, excluding a small amount of canned salmon, consisted of 61,550 tons of lumber shipments and 115,000 tons of incoming logs towed in rafts. Of the shipments, 45,776 tons were direct by ocean carrier to domestic and foreign ports, 14,097 tons went to Astoria by rafts, barges, and rail for transshipment, and 1,677 tons were shipped by barges

[1] Not printed.

and small boats. Lumber shipments direct by rail to consumers amounted to 9,019 tons.

6. No convincing showing is made of any probable large increase of water-borne commerce as a result of the improvement recommended. Present shipments by rail are presumably to inland markets and but little, if any, of the small amount thus shipped would be diverted to the waterway. Even were the combined output of the three mills now on the channel increased from 50 to 100 per cent as suggested in the brief accompanying the report and all was shipped by water, the total shipments would be small as compared with other lumber shipping ports. The other immediately prospective enterprises referred to do not appear to be likely to furnish any considerable amount of water-borne tonnage, and the general industrial development anticipated is wholly problematical.

7. Apparently the chief benefits that would be derived from a deeper channel would be the saving of the cost of transferring something less than about 9,000,000 feet b. m. of lumber to the port of Astoria for shipment and the possibility of the shipment of a larger percentage of the output to foreign rather than domestic ports. These savings would, it is believed, chiefly accrue to local interests rather than to the ultimate consumer. Increase in the value of the land adjoining the channel and the reestablishment of the value of the bond issue for which the city of Warrenton obligated itself in connection with the original improvement do not appear to be matters of sufficient national importance to justify expenditures by the Federal Government for this improvement.

8. The strongest argument for Federal expenditures at this locality appears to be based upon the large amount already spent for the improvement by local interests. It is thought that these expenditures, together with what increase in commerce may reasonably be expected, are sufficient to justify a limited amount of work by the United States.

9. A channel of 30 feet depth is not considered essential. Important localities on this coast, such as Coos Bay, Willapa, and Grays Harbors, do not have that depth and yet have developed a large amount of commerce, both foreign and domestic. A channel 150 feet wide and 25 feet deep is believed to be sufficient for the present needs of this locality. Such a channel should amply provide for all coastal shipments, and by dredging berths at the docks and by taking advantage of the tide most of the lumber-carrying ships using the Columbia River could be accommodated at this port with but little inconvenience.

10. I therefore recommend that the improvement of the Skipanon Channel be undertaken by the United States to the extent of dredging a channel 25 feet deep at mean lower low water, 150 feet wide on the bottom, suitably widened at the bends, and with a turning basin ABCD as indicated on the map, at an estimated cost of $78,000, and $13,000 annually for maintenance dredging only, subject to the provisos; that local interests agree to (*a*) maintain without cost to the United States the timber bulkheads at the outer portion of the channel, (*b*) furnish free of cost to the United States places of deposit for material dredged both for original construction and for maintenance, (*c*) deed free of cost to the United States all uplands chan-

nelward of the established harbor lines, and (*d*) secure the United States from liability for any claims for damage on account of dredging the channel and turning basin.

W. J. BARDEN,
Colonel, Corps of Engineers,
Division Engineer.

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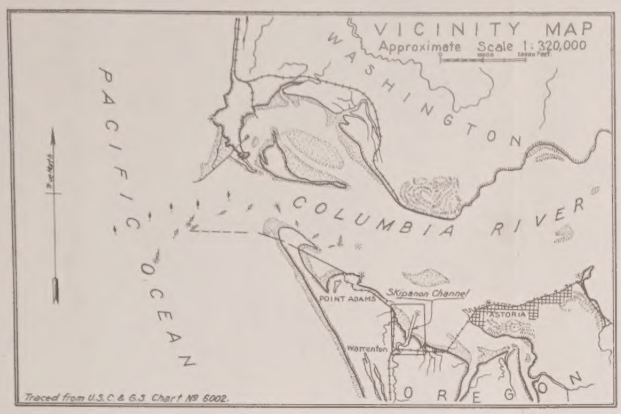
WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY



COLUMBIA RIVER

Ebb

Skipanon Light

Bulkhead

Bulkhead

Pierhead & Bulkhead Line

Pierhead & Bulkhead Line

TRUE NORTH

Prouty Mill

COLUMBIA AVE.

PACIFIC AVE.

YOUNGS AVE.

WHEELER ST.

LEWIS AVE.

CLARK AVE.

TONQUIN AVE.

HAYNES ST.

MARSHALL AVE.

SPOKANE AVE.

ARTHUR ST.

VANCOUVER AVE.

PORTLAND AVE.

MAIN ST.

WATER ST.

HARRISON ST.

MORTON ST.

GARFIELD ST.

City Dock

Valley Dock

SALEM AVE.

SECOND ST.

SPRR TO PORTLAND

SPOKANE ST.

SPRUCE ST.

WARRENTON

NOTE

Soundings are in feet and show the depth at Mean Lower Low Water.

Proposed 200' Channel Lines:- ——·——

Pierhead and Bulkhead Lines recommended in the report to the Chief of Engineers dated November 12, 1926 are shown thus:- ——————

SKIPANON CHANNEL OREGON

SURVEY REPORT

SURVEYED FEBRUARY 1926.

Scale 1 in = 480 feet

U.S. ENGINEER OFFICE, PORTLAND, OREGON DISTRICT

Submitted: E. B. Harrison, Associate Engineer

Approved: R. I. Coiner, Major, Corps of Engineers

Surveyed by G.G.H

Traced by C.F.G.

To accompany Report to Chief of Engineers Dated December 13, 1926.

U. S. GOVERNMENT PRINTING OFFICE: 1927

WARRENTON